

LISTING OF THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

1 (currently amended): A method of production of a steel product with a nanocrystallized surface layer,

said method of production of a steel product with a nanocrystallized surface layer characterized by comprising:

(1) subjecting a surface layer of a steel product to ultrasonic impact treatment impacting it by one or more ultrasonic indenters vibrating in a plurality of directions, with said ultrasonic impact treatment of said surface layer providing equiaxial grains in said surface layer, then

(2) subjecting the surface layer subjected to the ultrasonic impact treatment to heat treatment at 100 to 500°C for 15 minutes or more to cause precipitation of nanocrystals.

2 (previously presented): A method of production of a steel product with a nanocrystallized surface layer as set forth in claim 1, characterized in that the surface layer of the steel product subjected to said ultrasonic impact treatment is in an amorphous state.

3 (previously presented): A method of production of a steel product with a nanocrystallized surface layer as set forth in claim 1, characterized in that said ultrasonic impact treatment is accompanied with mechanical alloying.

4 (previously presented): A method of production of a steel product with a nanocrystallized surface layer as set forth in claim 1, characterized by making an amorphous phase and a nanocrystal phase copresent in precipitation of said nanocrystals.

5 (previously presented): A method of production of a steel product with a nanocrystallized surface layer as set forth in claim 1, characterized by shielding the surroundings at the time of said ultrasonic impact treatment from the air.

6 (canceled).